

Zero Retries issue 0122 2023-10-27

Zero Retries is an independent newsletter promoting technological innovation in Amateur Radio, and Amateur Radio as (literally) a license to experiment with and learn about radio technology. Now in its third year of publication, with ~~900+~~ 1000+ subscribers.

About Zero Retries

Steve Stroh N8GNJ, Editor

Jack Stroh, Late Night Assistant Editor Emeritus

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Web version of this issue - <https://www.zeroretries.org/p/zero-retries-0122>

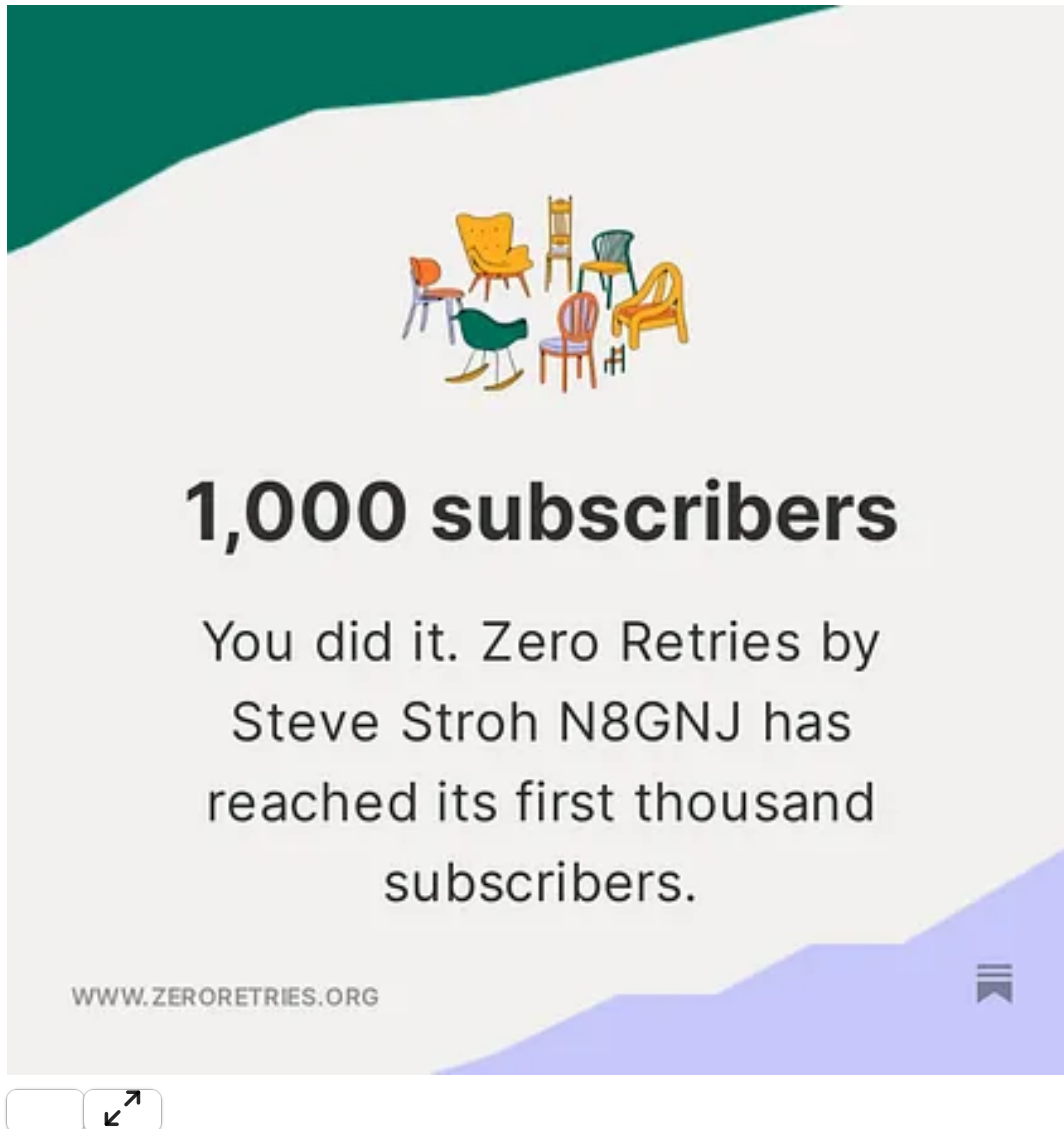
Request To Send

Editorial by Steve Stroh N8GNJ

1000+ Zero Retries Subscribers!

A few times in the past couple of months I have mentioned that I had a modest goal of achieving 1000 subscribers by the end of 2023. That threshold has now been realized, more than two months earlier than my goal.

Prior to publishing Zero Retries 0121 last week, the subscriber count had risen to 990+, but by the time I committed that issue to the autopublish queue, it had not *quite* ticked over 1000... but it was *close*.



A few hours after Zero Retries 0121 autopublished, the subscriber count rose comfortably above 1000, so the occasional unsubscribe won't negate that milestone.

The 1000 subscribers threshold feels pretty good! When I began Zero Retries back in July 2021, I remember imagining that maybe, just maybe, Zero Retries might, *conceivably*, achieve 1000 subscribers. The 1000 subscribers threshold was in my mind from an essay by Kevin Kelly (yet another virtual mentor in my odd writing "career") called "[1000 True Fans](#)". Kelly said, in part:

To be a successful creator you don't need millions. You don't need millions of

dollars or millions of customers, millions of clients or millions of fans. To make a living as a craftsman, photographer, musician, designer, author, animator, app maker, entrepreneur, or inventor you need only thousands of true fans.

Kelly posits that that 1000 True (paying) Fans is the threshold of achieving a sustainable, independent career. In the case of Zero Retries, it was never a goal of mine to make a living from publishing Zero Retries. As I've often said, Zero Retries is a combination of scratching a personal itch (regular discussion of technological advancement in Amateur Radio), a love letter to Amateur Radio, and "payment forward" *for all that I've received from Amateur Radio and my fellow Amateur Radio Operators*. Thus, while paid subscribers and Founding Members *is greatly appreciated*, their numbers (and the revenue generated) aren't my metric of success for Zero Retries.

The number of *readers* of Zero Retries is higher than the *subscriber count* as there are many readers who do not subscribe via email. *Those* readers take advantage of Really Simple Syndication (RSS) notification using an RSS feed reader to receive notification of a new issue and read it in their feed reader. The number of Zero Retries readers via RSS can't really be quantified. I also try to post brief updates when I publish Zero Retries on Mastodon ([@n8gnj](#)), which is the only social media "Zero Retries" participates in.

There are also casual readers who encounter Zero Retries after a web search, or some mention, and just "drop in" to read an issue or two of the more than the two and a half years of weekly issues of Zero Retries.

In any case, Thank You Zero Retries Readers! If you readers and subscribers weren't expressing your interest by subscribing, there wouldn't be much point in writing Zero Retries.

Slow News Week... Yeah, Right!

This has happened more times than I can easily count now, that when it looks like a "slow news week" and I can catch up on backlogged topics from the Zero Retries queue... some major Zero Retries Interesting news breaks that really demands attention in Zero Retries. With the news from the FCC, *this was one of those weeks*.

Short Shrift, and Late Publishing Apology

This issue of Zero Retries is not up to my usual (self imposed) standards as this week has been consumed with some personal issues that have consumed almost the entire week, which resulted in less writing time than usual and late publication.

In particular, I need to defer an article resulting from the many responses I received to my query - Inexpensive Generic Data Radio Recommendation? That will appear in next week's issue of Zero Retries.

A Thank You Note to Representative Debbie Lesko

One of the primary items that's now on my To Do list for next week is to write a personal Thank You note to Representative Debbie Lesko. It's apparent to me that her interest in the

arcane issue of Symbol Rate Limitations in US Amateur Radio was *a* turning point, if not *the* turning point, in the FCC finally addressing this long-deferred issue.

Thus I feel I owe Representative Lesko a personal Thank You note for her efforts on this. I hope others feel the same way.

[Contact info \(web page\) for Representative Debbie Lesko.](#)

73,

Steve N8GNJ

Leave a comment

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FCC Proposes to Delete Symbol Rate Limitations from US Amateur Radio Regulations

By Steve Stroh N8GNJ

It looks promising that the FCC announced its intent to eliminate outdated symbol rate limitations from the US Amateur Radio regulations!

Reference:

- [November 2023 Open Meeting Agenda](#) (by FCC Chairperson Jessica Rosenworcel)
- [FCC Announces Tentative Agenda for November \[2023\] Open Meeting
FCC FACT SHEET - Elimination of the Baud Rate Limitation in Applicable Amateur Radio Bands](#)
- The Annual Pactor 4 Hurricane Ritual (Zero Retries 0066)
- US Legislation Proposed to Force FCC to Replace Symbol Limit on HF with 2.8 kHz Bandwidth Limit (Zero Retries 0078)
- Interesting Letter to FCC from Texas Department of Public Safety (Zero Retries 0109)
- Instructive Exchange Between Representative and FCC Chair (Zero Retries 0114)
- My Letter to ARRL Regarding Elimination of Symbol Rate from US Amateur Radio Regulations (Zero Retries 0117)

I've written previously (see above) about the issue of US Amateur Radio regulations specifying (outdated) symbol rate limits for data communications in the VHF and UHF bands retarding the development of faster data communications technology. *It looks like that issue may soon be resolved.* That's a very pleasant surprise because there was little hint that the FCC was prepared

to give this issue any attention, other than two minor nuances¹ in the exchange between Representative Debbie Lesko and FCC Chairperson Jessica Rosenworcel (see Instructive Exchange...). The first nuance was that this “minor” issue (in the scope of the FCC’s many backlogged issues in queue) was being addressed by a Representative of Congress. Representative Lesko had already introduced legislation to essentially force the FCC to address this issue, and she claimed to be ready to do so a second time. FCC Chairperson Jessica Rosenworcel clearly didn’t relish that prospect:

I think we should refresh that record so that we can move ahead and maybe get to this issue before you have to introduce some additional legislation.

The second nuance of that exchange was very subtle and I confess that I may well be reading too much into it, or just wishful thinking, but it seemed to me that when Rosenworcel FCC Commissioner Nathan Simington spoke about Amateur Radio... it seemed (again, *my subjective opinion*...) that they did so with some mild affection instead of the usual sterile, measured responses that’s expected when professionals like these two testify in front of congress.

Thus, when FCC Chairperson Jessica Rosenworcel published *her* synopsis of the upcoming November 2023 FCC Open Meeting earlier this week, there was this pleasant surprise:

We’re bolstering amateur radio. We will vote on a proposal to incentivize innovation and experimentation in the amateur radio bands by removing outdated restrictions and providing licensees with the flexibility to use modern digital emissions.

~~A source of reliable information about the FCC pointed out that the FCC could have “slipstreamed” this item into a regular meeting of the FCC rather than including it in a public, open FCC meeting. By including this item in a public, open FCC meeting, the FCC is positioning Amateur Radio to receive some attention.~~

Update 2023-11-06

The above text in strikethrough was incorrect. The fault is mine for poor comprehension of the FCC’s administrative process. My thanks to those who pointed out my erroneous statement. Correcting my statement:

The FCC commissioners *only* meet in a public meeting. They do not meet (as a full commission) at any time *other* than the public meeting.

The FCC commissioners can vote on matters before it apart from their public meetings.

A few more details emerged in a press release - [November 2023 Open Meeting Agenda](#):

Amending Amateur Radio Rules for Greater Flexibility in Data

Communications – The Commission will consider a Report and Order and Further Notice of Proposed Rulemaking that would eliminate the symbol rate (also known as baud rate) limitation and establish a bandwidth limitation that would provide flexibility to use modern digital emissions, thereby promoting innovation and

experimentation in the amateur service. The item would also propose the removal the baud rate limitation in several additional bands. (WT Docket No. 16-239)

Finally the *full scope* of this proposed change (17 pages worth) [was published](#):

FCC FACT SHEET

Elimination of the Baud Rate Limitation in Applicable Amateur Radio Bands

Report and Order and Further Notice of Proposed Rulemaking WT Docket No. 16-239, RM-11708 (terminated)

There are *two* parts to this proposal. The first is:

Report and Order

- In most HF bands, removes the symbol (baud) rate limitations.
- Implements a 2.8 kHz bandwidth limitation.

As I understand the process of an FCC Report and Order, the actions in a R&O (after it is approved by a majority vote of the FCC Commissioners), becomes effective as soon as it is published in the Federal Register. Thus this change will take effect soon.

This change is good news... as far as it goes. In my opinion, the real substance was the second part of the FCC's proposal:

Further Notice of Proposed Rulemaking (WT Docket No. 16-239):

- "Finish the job" by addressing the 2200 meter (135.7 - 137.8 kHz - *2.1 kHz wide*) and 630 meter (472 - 479 kHz - *7 kHz wide*) bands by removing symbol (baud) rate limitations, and requesting comment on appropriate bandwidth limitations for these bands.
- ***Remove the symbol (baud) rate limitations in the VHF and UHF bands and requesting comment on appropriate bandwidth limitations for these bands!***

And, with that second item, there was *much rejoicing* (at least here in Zero Retries)! US Amateur Radio will at least *have a chance* to fix both limitations in the US Amateur Radio VHF and UHF bands that have been retarding progress on higher speed data communications technology.

Just achieving the first part - removing the symbol / baud rate limitations will be a huge improvement. Just to cite one example, the new [Icom IC-905](#) radio covers the Amateur Radio "144, 440, 1200, 2400, and 5600 MHz" and 10 GHz bands. The IC-905 includes Icom's unique Digital Data mode - 128 kbps data in a 100 kHz channel. That mode is only legal for the 1200 MHz band (and higher) because of this limitation applied to the 420-450 MHz band - *The symbol rate must not exceed 56 kilobauds*.

If just the symbol rate limitations are removed from the VHF / UHF bands, the IC-905 could

conceivably² be updated to operate DD mode in 420 - 450 MHz band. And other radios could conceivably be developed for operating DD mode in the 420 - 450 MHz band. Given that DD mode is now two decades old, such radios “shouldn’t be too tough to develop” with current technology.

But that the FCC is willing to consider changes to the maximum bandwidth on the VHF / UHF bands is *even more exciting*. One example of being able to use “higher bandwidth” (wider channels) is being able to use New Packet Radio units at their maximum data rate of 500 kbps, which requires a 1 MHz channel in the 420 - 450 MHz band. That really shouldn’t be an issue as using a 6 MHz channel in 420 - 450 MHz band is permitted... but only for “image” transmissions (legacy analog television).

While it’s clear that *this FCC* wants to help Amateur Radio develop innovative new data communications technology, I worry that US Amateur Radio, and especially some Amateur Radio organizations, have a demonstrated history of snatching defeat from the jaws of victory.

Specifically, more than two decades ago now, Spread Spectrum technology was becoming more widely used, but Spread Spectrum technology was largely prohibited in US Amateur Radio. It’s a painful memory of mine that TAPR had done a lot of good work in offering suggested regulatory changes to the FCC that would have enabled Spread Spectrum use in Amateur Radio. What was notable was that TAPR advocated Spread Spectrum use in the Amateur Radio VHF / UHF bands which would have been quite innovative (no one other than the US military had attempted to do so). But other Amateur Radio organizations, fearful of the change to the status quo that Spread Spectrum represented (FM repeaters might be impacted), were opposed to TAPR’s perspective on Spread Spectrum. The result of those competing perspectives was that the FCC “split the difference”, and Spread Spectrum *innovation* in Amateur Radio did not happen.

So now the hard work begins, to file substantive and reasoned comments on the FCC record in regards to:

- Removing the symbol (baud) rate limitations in the VHF / UHF bands, and
- Suggesting appropriate bandwidth limitations (maximum channel sizes) in the VHF / UHF bands.

I will be closely tracking this issue here in Zero Retries, with regular discussion and updates as this issue proceeds through the FCC’s process.

Attending the FCC November 15, 2023 Open Meeting

The Open Meeting is scheduled to commence at 10:30 a.m. ET in the Commission Meeting Room of the Federal Communications Commission, 45 L Street, N.E., Washington, D.C. While the Open Meeting is open to the public, the FCC headquarters building is not open access, and all guests must check in with and be screened by FCC security at the main entrance on L Street. Attendees at the Open Meeting will not be required to have an appointment but must otherwise comply with protocols outlined at: <https://www.fcc.gov/visit>. Open Meetings are streamed live at www.fcc.gov/live.

If I had the budget, or lived within reasonable driving range of Washington DC, I would attend this meeting in person. I hope other Amateur Radio Operators and organization feel similarly and Amateur Radio has a significant presence at this meeting. If you do, remember to bring and wear a prominent callsign badge. 😊 From my participation in a panel discussion at the FCC a couple of decades ago now, space is limited so queuing up early is recommended. This meeting is on my calendar to watch the livestream.

Leave a comment

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ZR > BEACON

By Steve Stroh N8GNJ

Short mentions of Zero Retries Interesting items.

[TAPR Mini DCC and Membership Meeting December 9](#)

While TAPR was unable to hold its traditional Digital Communications Conference this year, there's been a lot going on in the organization. To update members and to hold the annual TAPR membership meeting, we are happy to announce the 2023 Mini DCC to be held online on Saturday, December 9, from 1700 to 2230 UTC (1200 to 1730 EST, 0900 to 1430 PST).

Planned presentations include:

- TAPR SDR Development Progress and Challenges by David Larsen, KV0S
- Developments in ka9q-radio by Phil Karn, KA9Q
- An Open Source Wideband HF Receiver Design by David Witten, KD0EAG
- An Inexpensive GPSDO for HF Receivers by John Ackermann, N8UR
- Current Open Source Digital Voice Techniques by Walter Holmes, K5WH
- A Low Cost FreeDV-based ESP32 Radio Interface by Mooneer Salem, K6AQ
- ESP32 APRS and LoRA Hardware by Jason Rausch, K4APR

The annual TAPR membership meeting will occur following the presentations.

Login details for the meeting will be available at <https://tapr.org> prior to December 9.

I was *so, so happy* to read this announcement that the TAPR DCC isn't dead after all. I'll be

watching / attending / participating!

Raspberry Pi 5 is Now Shipping

Shipments began on Monday 2023-10-23. For example, you can order the [8 GB version of the RPi 5 from PiShop.us](#) for \$80, for delivery in December, 2023. Until various power supplies are proven to work adequately with the Raspberry Pi 5's higher power demands, I'd suggest getting the official Raspberry Pi 5 power supply.

I'm looking forward to the "Raspberry Pi 500".

RPC Electronics SMT TARPEN NinoTNC - Now Taking Pre-Orders!

The SMT TARPEN NinoTNC is a fully assembled, flashed and tested version of the famous TARPEN NinoTNC created by Nino Carillo KK4HEJ. Nino has given us full permission to develop this version and sell it. He has even lended a hand in testing prototype units with his standard rigorous testing standards that he uses on his own version. The TARPEN NinoTNC uses the KISS protocol to communicate with the host computer, making it universally compatible with most packet/APRS/WinLink software. The SMT version is 100% compatible with the original TARPEN NinoTNC firmware, thus making it compatible with future firmware revisions.

It isn't clear to me what the distinction is of "Pre-Order" as this page is for placing an *order for the unit, including payment* (which apparently is charged immediately). There is no delivery date specified, but that's a quibble. This is a business and a product that is clearly all about getting a new Amateur Radio capability into the hands (and stations) of fellow Amateur Radio Operators, and the price is < \$100. My order for my SMT TARPEN NinoTNC was placed the next day.

Elecraft KH1 Hand-Held, 5-Band [HF, CW-only] Transceiver Announced

KH1 Features:

- 40-15 m ham bands; 6-22 MHz SWL
- CW mode; 5 watts, all bands
- ATU includes whip & high-Q inductor for 20/17/15 m
- 2.5 AH Li-Ion battery & internal charger
- CW decode & 32K TX log
- Scan/mini-pan feature

- Real-Time Clock
- Full remote control
- Speaker
- RIT, XIT, & VFO lock
- Light gray case stays cool even in bright sunlight

The best perspective I've read to date about the new KH1 was from [Zero Retries Pseudostaffer Jeff Davis KE9V](#):

I have no need for a new QRP transceiver, and ultra-portable operation isn't a primary interest for me. But having been a happy Elecraft customer for more than two decades I don't like to pass on these kinds of opportunities, so I placed an order for the kit and caboodle. The transceiver and all the options in a combo they call the "*Edgewood Package*".

The whole amateur radio world has gone bonkers for FT modes and here is a small company in California rolling the dice that some significant number of amateur radio enthusiasts will want to purchase a device focused on CW.

Never bet against thinking different.

This statement may be perceived as condescending, but rather it's heartfelt. *The KH1 looks fun enough that it may rekindle my latent interest in operating CW (Morse Code).*

AMSAT PacSat Project - Quick Mention

I was only able to watch a few hours of last weekend's [AMSAT-NA 41st Annual Space Symposium and Annual General Meeting](#) that was [livestreamed on YouTube](#). It's on my short list, when I have some recreational butt-in-chair time to watch *all* of it.

Apologies (again - short shrift this issue) that I don't have more details in *this* article (I will do so next issue), but I didn't want it to go unacknowledged how interested I now am in an ongoing project within AMSAT-NA to create new "PacSat payloads". PacSat is an old concept for Amateur Radio satellites (several have been actually orbited), with multiple uplinks, and one downlink. A PacSat can either be used live (as a digipeater) or store and forward mailbox with message uploads and downloads at various points in the satellite's orbit. What's new is that the radios on this new PacSat payload are modern Software Defined Radio units, the processor is powerful, and there will be ample storage available (I think...). The entire PacSat payload is a single board suitable for inclusion in any of the current generation of AMSAT small satellites, but as I understood it, that PacSat board could also be used terrestrially. Notably, *this* implementation of PacSat is being [developed as open source project via Github](#).

In the Q&A after the session, one attendee offered an observation that a youth he observed trying to work a voice satellite was frustrated that there were no gaps in the use of the satellite,

and the youth was hesitant to be “rude” in trying to get in a contact. The attendee said (paraphrasing from memory) “But, put a keyboard in front of one of these youths and you can watch them really get excited because they’re very comfortable with text communications.” He went on to say that he was really encouraged about PacSat, that it would be very well received in trying to get youth interested in Amateur Radio satellites.

I agree wholeheartedly with that attendee, and if a PacSat payload gets scheduled for inclusion in a satellite, I’ll be an enthusiastic supporter, and user, of *that* satellite.

Leave a comment

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Join the *Fun* on Amateur Radio

If you’re not yet licensed as an Amateur Radio Operator, and would like to join the fun by *literally having a license to experiment with radio technology*, check out **Join the Fun on Amateur Radio** for some pointers.

Zero Retries Frequently Asked Questions (FAQs) — In development 2023-02.

Closing the Channel

In its mission to highlight technological innovation in Amateur Radio, promote Amateur Radio to techies as a literal license to experiment with radio technology, and make Amateur Radio more relevant to society in the 2020s and beyond, Zero Retries is published via email and web, and is available to everyone at no cost. Zero Retries is proud *not to participate* in the Amateur Radio Publishing Industrial Complex, which hides Amateur Radio content behind paywalls.

My ongoing *Thanks* to:

- Tina Stroh KD7WSF for, well, *everything*!
- **Founding Members who generously support Zero Retries financially:**
 - Founding Member 0000 - Steven Davidson K3FZT
 - Founding Member 0001 - Prefers to Remain Anonymous 01
 - Founding Member 0002 - Chris Osburn KD7DVD
 - Founding Member 0003 - Don Rotolo N2IRZ
 - Founding Member 0004 - William Arcand W1WRA
 - Founding Member 0005 - Ben Kuhn KU0HN
 - Founding Member 0006 - Todd Willey KQ4FID
 - Founding Member 0007 - Merik Karman VK2MKZ
 - Founding Member 0008 - Prefers to Remain Anonymous 14
- Numerous Annual and Monthly subscribers who also generously support Zero Retries financially!

Want to Support Zero Retries?

- The *most* effective way to support Zero Retries is to simply mention Zero Retries to your co-conspirators that are also interested in knowing more about technological innovation that is occurring in Amateur Radio and encourage them to become a fellow subscriber.
- One particularly effective method of promoting Zero Retries is to add a mention of Zero Retries to your [QRZ](#) page (or other web presence) and include a link:

<https://www.zeroretries.org>

- If you'd like to financially support Zero Retries, becoming a paid subscriber is *greatly* appreciated and helps offset expenses incurred in publishing Zero Retries. Paid subscriptions for Zero Retries are *entirely optional*, as explained in this special issue of ZR:
Zero Retries Administrivia - Activating Payment Options.

These blogs and newsletters regularly feature Zero Retries Interesting content:

- [Dan Romanchik KB6NU](#) mentions “Zero Retries Interesting” topics so regularly on his blog (that I otherwise wouldn't know about) that I've bestowed on him the honorific of Pseudostaffer.
- [Jeff Davis KE9V](#) also mentions “Zero Retries Interesting” topics so regularly on his blog (that I otherwise wouldn't know about) that I've bestowed on him the honorific of Pseudostaffer.
- [Amateur Radio Weekly](#) by Cale Mooth K4HCK is a weekly anthology of links to interesting Amateur Radio stories.
- [Experimental Radio News](#) by Bennet Z. Kobb AK4AV discusses (in detail) Experimental (Part 5) licenses issued by the US FCC. It's a *must-read-now* for me!
- [RTL-SDR Blog](#) - *Excellent* coverage of Software Defined Radio units.
- [TAPR Packet Status Register](#) has been published continuously since 1982.
- Other Substack Amateur Radio newsletters recommended by Zero Retries.

These YouTube channels regularly feature Zero Retries Interesting content:

- [HB9BLA Wireless](#) by Andreas Spiess HB9BLA
- [KM6LYW Radio](#) by Craig Lamparter KM6LYW (home of the [DigiPi project](#))
- [Modern Ham](#) by Billy Penley KN4MKB
- [Tech Minds](#) by Matthew Miller M0DQW

Zero Retries is currently using the [Substack email publishing platform](#) to publish Zero Retries.

It's particularly suitable for small newsletters as you can get started for no cost.

If you're reading this issue on the web and you'd like to see Zero Retries in your email Inbox every Friday afternoon, just click below to join ~~100 200 300 400 500 600 700 800 900~~ **1000+** other subscribers:

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Please tell your co-conspirators about Zero Retries — just click:

Share Zero Retries

Offering **feedback or comments** for Zero Retries is equally easy — just click:

Leave a comment

If you're a fellow smart person that uses **RSS**, there *is* an **RSS feed for Zero Retries**.

Zero Retries (N8GNJ) is on Mastodon — n8gnj@mastodon.radio — just click:

[Zero Retries / N8GNJ on Mastodon](#)

Email issues of Zero Retries are “instrumented” by [Substack](#) to gather basic statistics about opens, clicking links, etc.

More bits from Steve Stroh N8GNJ:

- [SuperPacket blog](#) — *Discussing new generations of Amateur Radio Data Communications — beyond Packet Radio (a precursor to Zero Retries)*
- [N8GNJ blog](#) — *Amateur Radio Station N8GNJ and the mad science experiments at N8GNJ Labs — Bellingham, Washington, USA*

Thanks for reading!

Steve Stroh N8GNJ / WRPS598 (He / Him / His)

These bits were handcrafted (by a mere human, not an Artificial Intelligence bot) in beautiful Bellingham ([The City of Subdued Excitement](#)), Washington, USA, and linked to the Internet via [Starlink Satellite Internet Access](#).

2023-10-27

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Blanket permission granted for TAPR to use any Steve Stroh content for the TAPR Packet Status Register (PSR) newsletter (I owe them from way back).

1

These nuances were entirely subjective, from my perspective, in *my* viewing of the video. It wasn't what was said, it was *how things were said*, reading some human emotion into the verbal exchange.

2

I say *conceivably* as I have no idea if the architecture of the IC-905 could be updated to accommodate the use of DD mode in the 420 - 450 MHz band.